

IV. REMARKS

With the above amendments, the specification has been amended to correct minor typographical and grammatical errors. The specification has also been amended to incorporate the subject matter of original claims 12-15, and to designate the “optical valve” by character reference “30” in accordance with changes made to the drawings. Furthermore, the specification has been amended to clarify that the “crown 8” is a type of “external control member.”

The drawings have been amended to designate the “optical valve,” which is shown in original Fig. 1 and as originally described on page 6, lines 19-22, by the new character reference “30.” The drawings, as originally filed, plainly show a “crown 8,” which is a type of “external control member.” Therefore, the drawings as originally filed illustrate an “external control member.”

Applicant traverses the Examiner’s objection to Fig. 2, regarding the “boxes” shown therein, for failing to have corresponding text (Office Action, dated March 6, 2006, at 2, lines 3-4). Fig. 2 is a schematic block diagram of various components of the wristwatch shown in Fig. 1 (See specification, page 4, lines 1-2), and the “boxes” represent components of the wristwatch and are properly labeled using character references in accordance with 37 C.F.R. § 1.84(p). No text is required in Fig. 2.

Claims 1, 6-9 and 13-15 have been amended. More specifically, claim 1 has been amended to improve grammar and punctuation, and to replace pronouns with their respective nouns, which has no further limiting effect on the scope of claim 1. Claim 1 has also been amended to recite “said processing unit is provided with an algorithm or a correspondence table between a marking R_i , located in any position on the whole surface of the dial,” as supported by Figures 3 to 4 of the application as originally filed.

Claim 6 has been amended to recite "wherein a given value of an angle α or β corresponds separately to a determined number of steps of a stepping motor" as supported on page 5, lines 7-19, of the specification as originally filed.

Claims 7-9 and 13-15 are amended to correct typographical errors and to replace pronouns with their respective nouns, which has no further limiting effect on the scope of these claims. Claim 15 is additionally amended to replace the word "permanently" with the word --continuously-- as supported by Figure 1 of the application as originally filed.

Applicant traverses the Examiner's objection to claim 1 based on the Examiner's contention that the original "wherein" clause is unclear (Office Action, dated March 6, 2006, at 4, lines 2-8). Claim 1 now recites

"wherein said processing unit is provided with an algorithm or a correspondence table between a marking R_i , located in any position on the whole surface of the dial, and angles α_i and β_i formed respectively by each hand from a measurement reference wherein the shape of the hands is such that, when the hands have the angular orientations α_i and β_i , elongated parts of the hands can intersect above said marking R_i , or tips of the hands can be aligned opposite said marking R_i ."

The instant "wherein" clause of claim 1 is clear and particularly points out and distinctly claims that the processing unit is provided with an algorithm or a correspondence table between a marking R_i , which may be located in any position on the whole surface of the dials, and angles α_i and β_i formed respectively by each hand from a measurement reference. The "wherein" clause describes a relationship between the marking R_i and the angles α_i and β_i formed respectively by each hand from a measurement reference. In a conventional timepiece, for example, only one angle pair α_i , β_i is necessary to point the time of a hand on a desired R_i .

The present amendment adds no new matter to the above-captioned application.

A. The Invention

The present invention pertains broadly to a portable electronic apparatus for displaying a piece of information in an analogue manner, such as can be used for displaying time information among other things. In accordance with an embodiment of the present invention, a portable electronic apparatus is provided that includes the features recited by independent claim 1. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage of the embodiments of the present invention is that a portable electronic apparatus is provided that has two hands driven independently by two stepping motors so that the position of the hands may be used to display time related and non-time related information.

B. The Rejections

Claims 12-15 stand rejection under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

Claims 1-4, 6-9 and 11 stand rejected under 35 U.S.C. § 102(b) as anticipated by Satodate (WO 01/55802, which is equivalent to U.S. Patent 6,700,836, and hereafter referred to as the "Satodate Document").

Claim 5 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Satodate Document in view of Lorello (U.S. Patent 5,422,864, hereafter the "Lorello Patent"). Claim 10 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Satodate Document in view of Solomon (U.S. Patent 6,154,421, hereafter the "Solomon Patent"). Claims 12 and 13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the Satodate Document in view of Tschannen et al. (U.S. Patent 5,444,671, hereafter the "Tschannen Patent"). Claims 14 and 15 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the Satodate Document in

view of the Tschannen Patent, and further in view of Will (U.S. Patent 5,825,353, hereafter the "Will Patent").

Applicant respectfully traverses the Examiner's rejections and requests reconsideration of the above-captioned application for the following reasons.

C. Applicant's Arguments

The Examiner contends that the specification as originally filed does not properly enable the subject matter of claims 12-15. Applicant disagrees. The original claims as filed are part of the specification. In re Benno, 226 U.S.P.Q. 683, 686-87 (Fed. Cir. 1985). By the present amendment, the subject matter of original claims 12-15 has been added from the original claims to the body of the specification.

An original disclosure must enable a person skilled in the art to make and use the claimed invention without undue experimentation. In re Wands, 8 U.S.P.Q.2d 1400, 1404 (Fed. Cir. 1988). In this case, a person of ordinary skill in the art would be able to make and use the invention of claims 12-15 without undue experimentation because the art is mature and predictable, a watchmaker is a highly skilled artisan, the nature of the invention is that of a straightforward electromechanical device, and the original claims 12-15 along with the description on page 6, line 23, to page 7, line 2, of the specification as originally filed, provides adequate guidance. In re Wands, 8 U.S.P.Q.2d at 1404 (listing factors to consider when determining whether an original disclosure is enabling).

I. The Section 102(b) Rejection

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481,

485 (Fed. Cir. 1984). In this case, the Satodate Document fails to teach each and every element of the claimed invention.

ii. The Satodate Document

With reference to both International Publication WO 01/55802 and U.S. Patent 6,700,836 B1 (hereafter, the "Satodate Patent"), the Satodate Document teaches an "electronic timepiece with indicator hands" wherein the timepiece (100) includes time hands (101), (102) and first and second indicator hands (103), (104) that are separate from time hands (101), (102), and a driving means for rotating the first and second indicator hands in opposite directions for reciprocating rotary motion within a predetermined range (See English Abstract and Figs. 1 and 3 of the Satodate Document). The timepiece or wristwatch (100) taught by Satodate is provided with a second stepping motor (222) that drives the time hands (101), (102) in a conventional manner to move the minute hand (101) and the hour hand (102) in order to display the time (col. 4, lines 54-62, of the Satodate Patent). On the other hand, Satodate teaches that a first stepping motor (200), which is fully independent of the second stepping motor (222), drives the first and second indicator hands (103), (104) in order to reciprocally rotate these hands in opposite directions within a predetermined range (col. 3, line 66, to col. 4, line 7, of the Satodate Patent). Satodate also teaches the first and second indicator hands (103), (104) are provided with decorative shapes such as the crescent-shape (105) and the star-shape (106), (col. 3, lines 32-37, of the Satodate Patent), which a person of ordinary skill in the art would realize serves only a decorative purpose but no technical function.

From the teachings of the Satodate Document and the Satodate Patent, a person of ordinary skill in the art would realize that the second stepping motor (200) of Satodate is capable of only moving the indicator hands (103), (104) in a symmetrical reciprocating

manner, backwards and forwards, whether a continuous or random movement, but always by the same step angle! In other words, the stepping motor (200) of Satodate cannot allow one indicator hand (103) or (104) move to an angle α_i and the other hand (104) or (103), respectively, to move an angle β_i that is different from angle α_i .

For example, as shown in Figure 1 of the Satodate Document, $\alpha_i = \beta_i = A$. In Figure 9 of the Satodate Document, $\alpha_i = \beta_i = C$, and in Figure 10 of the Satodate Document $\alpha_i = \beta_i = D$. No asymmetrical solutions are possible. The Satodate Document also does not teach, and its figures do not show, that it is possible for the angles A (or C or D) to overlap (See Figures 1, 9 and 10 of the Satodate Document). The Satodate Document further does not teach that the decorative figures (105), (106) of the indicator hands (103), (104) may overlap to provide the timepiece (100) with an additional form of time or non-time related information that is displayed.

In sum, the indicator hands (103) and (104) taught by the Satodate Document serve only a decorative/animation purpose, and are not at all relevant to the subject matter of the presently claimed invention. The Satodate Document is insufficient to establish a prima facie case of anticipation against the instant claims because Satodate does not teach, or suggest, (1) "said processing unit is provided with an algorithm or a correspondence table between a marking R_i , located in any position on the whole surface of the dial, and angles α_i and β_i formed respectively by each hand from a measurement reference wherein the shape of the hands is such that, when the hands have the angular orientations α_i and β_i , elongated parts of the hands can intersect above said marking R_i , or tips of the hands can be aligned opposite said marking R_i " as recited by independent claim 1; (2) "wherein a given value of an angle α or β corresponds separately to a determined number of steps of a stepping motor" as recited in claim 6; and (3) "an optical valve is placed above the dial" as recited in claim 11.

As admitted by the Examiner, the Satodate Document does not teach all of the subject matter of claims 5, 10 and 12-15 (Office Action, dated March 6, 2006, at 8, line 10, to at 12, line 2).

With respect to claim 6, the Examiner contends that the Satodate Document inherently teaches the subject matter. Applicant disagrees. As discussed above, the Satodate Document teaches that $\alpha_i = \beta_i$; however, claim 6 recites that “a given value of an angle α or β corresponds separately to a determined number of steps of a stepping motor” so that while α_i may be equal to β_i in accordance with the present invention it is not limited to this condition. Consequently, in accordance with claim 6 of the present application, α_i may not be equal to β_i . On the other hand, the device taught by the Satodate Document is not capable of moving the indicator hands (103), (104) so that α_i is not equal to β_i .

iii. The Section 103 Rejection

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation to combine the references to produce the claimed invention. In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992); In re Vaeck, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In this case, the Satodate Document fails to teach each and every limitation of independent claim 1 and the Lorello Patent, the Solomon Patent, the Tschannen Patent and the Will Patent fail to make up the deficiency.

The Satodate Document is discussed above. The Lorello Patent teaches “minute clocks.” The Solomon Patent teaches a “calendar-timepiece combination.” The Tschannen Patent teaches a “wristwatch with message transmitter.” The Will Patent teaches “control of miniature personal digital-assistant using menu and thumbwheel.” However, none of these documents, either alone or in combination, teach or suggest “said processing unit is provided

with an algorithm or a correspondence table between a marking R_i , located in any position on the whole surface of the dial, and angles α_i and β_i formed respectively by each hand from a measurement reference wherein the shape of the hands is such that, when the hands have the angular orientations α_i and β_i , elongated parts of the hands can intersect above said marking R_i , or tips of the hands can be aligned opposite said marking R_i ” as recited by independent claim 1.

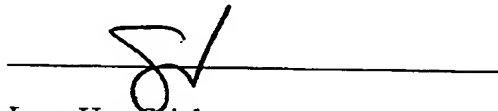
V. CONCLUSION

Claims 1-15 are in compliance with 35 U.S.C. § 112. Furthermore, the Examiner has failed to establish a prima facie case of anticipation against independent claim 1 because the Satodate Document does not teach, or suggest, “said processing unit is provided with an algorithm or a correspondence table between a marking R_i , located in any position on the whole surface of the dial, and angles α_i and β_i formed respectively by each hand from a measurement reference wherein the shape of the hands is such that, when the hands have the angular orientations α_i and β_i , elongated parts of the hands can intersect above said marking R_i , or tips of the hands can be aligned opposite said marking R_i ” as recited by independent claim 1. The Lorello Patent, the Solomon Patent, the Tschannen Patent and the Will Patent fail, in combination with the Satodate Document, to make up this deficiency in the teachings of the Satodate Document. Therefore, the Examiner has also failed to establish a prima facie case of obviousness against the instant claims.

For all of the above reasons, claims 1-15 are in condition for allowance and a prompt notice of allowance is earnestly solicited. Questions are welcomed by the below-signed attorney for applicant.

Respectfully submitted,

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III. AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes changes to Fig. 1. This sheet, which includes Figs. 1 and 2, replaces the original sheet including Figs. 1 and 2. In Fig. 1, the character reference "30" has been added to designate the "optical valve" described on page 6, lines 19-22, of the specification as originally filed.

Attachment: One Replacement Sheet
 One Annotated Sheet Showing Changes

Annotated Sheet

Fig.1

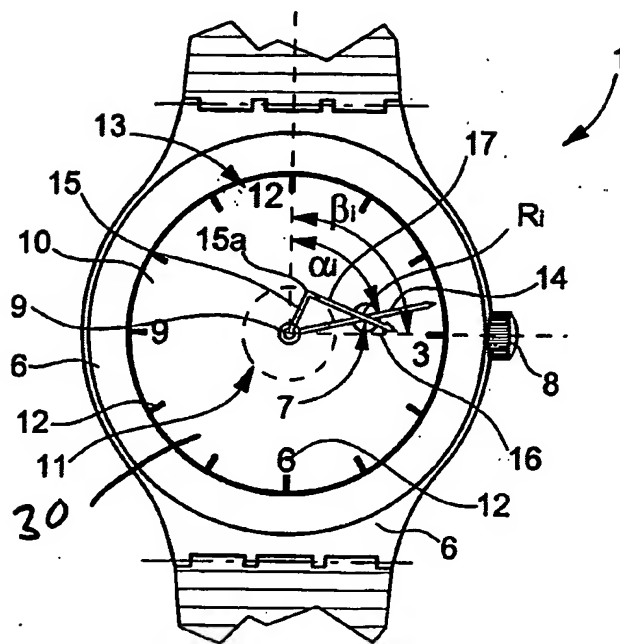


Fig.2

